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Rediscovery of *Microporellus iguazuensis* in southern Brazil

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Abstract — *Microporellus iguazuensis* is redescribed from the southern Atlantic rainforest of Brazil 23 years after its original description. The species is characterized by stipitate basidiomata, smooth ellipsoid basidiospores, simple-septate generative hyphae, dextrinoid skeletal hyphae, and a root-parasite habit. In the present work this noteworthy polypore is described, illustrated and its taxonomy discussed.

Key words — *Polyporaceae*, *Basidiomycota*, neotropical fungi

Introduction

The genus *Microporellus* Murrill comprises about 19 accepted species worldwide with a predominantly tropical distribution (Kirk et al. 2008). *Microporellus* was originally described as a segregate from the also tropical genus *Microporus* P. Beauv., which presents a trimitic hyphal system and coralloid dichophytic elements along the dissepiments (Ryvarden & Johansen 1980), features lacking in *Microporellus*. The taxonomic concept of the genus (Decock 2007) includes pileate species with a dimitic hyphal system and, mostly, dextrinoid skeletal hyphae and subglobose spores. The following species are known from Brazil: *M. brasiliensis* Ryvarden & Decock (Decock & Ryvarden 2002), *M. dealbatus* (Berk. & M.A. Curtis) Murrill (Loguercio-Leite & Wright 1991), *M. obovatus* (Jungh.) Ryvarden (Rajchenberg & Meijer 1990), and *M. terrestris* (Gibertoni & Ryvarden) Decock (Decock 2007).

In the present paper, we report the occurrence of a rare and poorly known *Microporellus* species that was collected during polypore surveys in the Atlantic rainforest. This ecosystem is located throughout most of the Brazilian Atlantic coast from the northeast to the south, covering the lower eastern slopes of the

mountain ranges (Morellato & Haddad 2000). It experiences a warm climate with abundant rainfall and, as one of the world's most endangered forests, is considered a hotspot worthy of conservation and research (Mittermeier et al. 2005).

Materials & methods

Basidiomes were collected between March 2007 and March 2009 in the northeast region of Rio Grande do Sul State, southern Brazil. Macro- and microscopical analyses followed usual polypore protocols (Núñez & Ryvarden 2001). Microscopic examinations were made from freehand sections mounted in a drop of 5% KOH solution and 1% phloxine solution; amyloid or dextrinoid reactions were observed in Melzer's reagent. The cyanophilous reaction was observed in cotton blue. Abbreviations follow Coelho (2005): Dm = diameter mean, Lm × Wm = means of length and width, Q = range of length/width ratios, Qm = length/width mean, and n = x/y, with x = number of measurements from y = number of specimens. Color names and codes follow Kornerup & Wanscher (1978). All the specimens are preserved at the ICN Herbarium (UFRGS).

Taxonomy

Microporellus iguazuensis Rajchenb., Mycotaxon 28: 111, 1987. Figs 1–8

Specimens Examined: BRAZIL. Rio Grande do Sul State, Dom Pedro de Alcântara, RPPN Mata do Professor Baptista, 27.III.2007, leg. M.A. Reck 035/07 (ICN 139893); Porto Alegre, Refúgio da vida Silvestre Morro Santana, 30.III.2007, leg. M.C. Westphalen 003/07 (ICN 154057); leg. M.C. Westphalen 006/07 (ICN154060); 13.III.2009, leg. M.A.Reck 004/09 (ICN154263).

Basidiomes annual, lateral to eccentrically stipitate, coriaceous and flexible when fresh, corky and rigid upon drying. Pileus up to 6.0 × 4.0 cm, flabellate-spathulate, with fusions between one or more parts of them, margin regular, some incurved upon drying; upper surface glabrous to slightly velutinate, zonate in shades of orange red (8.B7) and pastel red (8.A4), becoming pale upon drying, dull red (8.C3) with reddish brown zones (9.E6); stipe erect, lateral to eccentric, velutinate, light brown (7.D8), dark brown (8.F7) upon drying, up to 6.0 cm long and 5.0 mm wide; pore surface orange grey (5.B2; 6.B2) to greyish orange (5.B3), pores irregular, round to angular, 1–2/mm, shallow, up to 1 mm deep, decurrent on the stipe and, then, becoming daedaloid, dissepiments thick, entire; margin sterile, context very thin, concolorous with the pore surface, up to 2.5 mm.

Hyphal system dimitic, Generative hyphae simple septate, 2.5–5.0 µm wide, hyaline, in the trama Dm = 3.5, in the context Dm = 3.85, thin to slightly thick-walled, rarely branched, in the stipe Dm = 3.73, pale yellow to brown, with some branches; skeletal hyphae 3.5–7.5 µm wide, unbranched, thick-walled, with wide lumen, dextrinoid (strongly dextrinoid when seen in mass), hyaline to pale cinnamon, in the trama Dm = 4.64, in the context Dm = 5.24

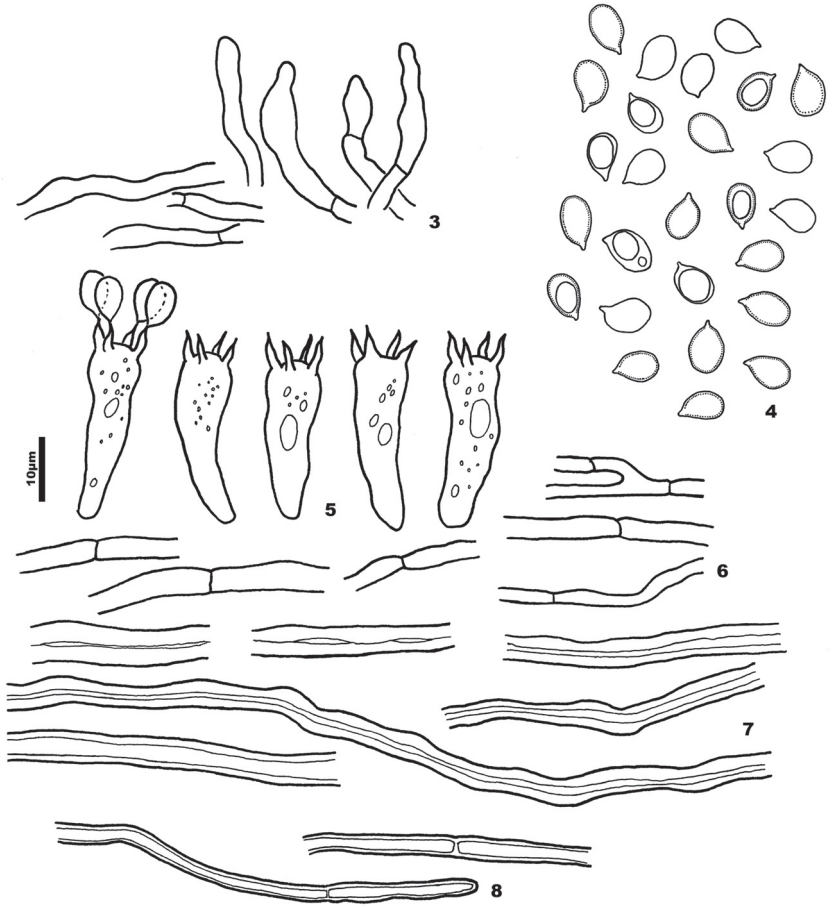
Figs. 1–2. Basidiome of *Microporellus iguazuensis* (ICN 154263)
1. Connected to roots of *Ocotea indecora*, showing the hymenophore. 2. Upper surface.

and parallel, in the stipe Dm = 5.11, pale yellow to rusty brown (all hyphae measurements n = 100/2). Cystidia lacking, but fusoid cystidioles can be found in the dissepiment edges. Basidia clavate 25.0–35.0 × 9.0–10.0 µm, tetraspored, with long sterigmata. Basidiospores broadly ellipsoid to ellipsoid, obovate, asymmetric in side view, smooth and hyaline, thin- to slightly thick-walled, generally with one big oil drop or a sparse oily content, IKI–, acyanophilous, 7.5–9.0 × 5.5–6.5 µm, Lm × Wm = 8.08 × 5.99, Q = 1.23–1.60, Qm = 1.35, n = 100/2.

Culture: Unknown. Attempts to obtain cultures from the context and spore print, using Malt Extract and Potato Dextrose Agars, were unsuccessful.

Substrata: Found on the ground among the litter, but connected to roots of living trees of *Ocotea indecora* (Schott) Mez (*Lauraceae*). Type of rot unknown.

Distribution: Previously known only from the type locality, in the forest of Iguazú National Park, in NE Argentina (Rajchenberg 1987), and now found in the Rio Grande do Sul state, southern Brazil, in two different sites of the Atlantic rainforest. If the species follows the host distribution, it could be widely distributed in forest systems where *O. indecora* (or perhaps other related species of *Ocotea* Aubl.) occur. In Brazil, *O. indecora* is distributed from Bahia to Rio Grande do Sul states (Sobral et al. 2006).



Figs. 3–8. *Microporellus iguazuensis* (ICN 139893).
3. Cystidioles from dissepiment edges. 4. Basidiospores. 5. Basidia.
6. Generative hyphae from trama and context. 7. Skeletal hyphae. 8. Generative hyphae from stipe.

Additional specimen examined: ARGENTINA. Misiones, Parque Nacional Iguazú, ad viam Apepú, 08.III.1980, leg. J.E. Wright M-3379 (BAFC 30708 holotype).

Remarks: *Microporellus iguazuensis* is an interesting polypore distinguished by its lateral to eccentric stipitate basidiome with flabelliform pileus and irregular large pores decurrent on the stipe. Microscopically it is characterized by a dimitic hyphal system with simple septate generative hyphae and strongly dextrinoid skeletal hyphae, large basidia, and ellipsoid to obovate basidiospores. Moreover, it presents a parasitic habit, growing on living roots of laurel trees

(Fig. 1). Macroscopically, *M. iguazuensis* can be confused with some species of *Polyporus* P. Micheli ex Adans. that present a dark stipe and large pores (like *P. guianensis* Mont.). However, *Polyporus* species differ microscopically by clamped generative and non-dextrinoid skeleto-binding hyphae.

Heterobasidion annosum (Fr.) Bref., an important root-rot pathogen of conifers, also presents a dimitic hyphal system with simple septate generative and dextrinoid skeletal hyphae but, in contrast with *M. iguazuensis*, has sessile basidiomes and minutely echinulate basidiospores (Gilbertson & Ryvarden 1986).

Decock (2007) cited the main morphological features of *Microporellus* as follows: light-weight pileate basidiomata possessing a white to pale cream context and trama, a dimitic hyphal system with unbranched skeletal hyphae, non- to dextrinoid vegetative hyphae, and slightly thick-walled spores with cyanophilous walls, generally containing an oil drop. *Microporellus iguazuensis* fits in this circumscription in some characters states, but it is the only species of the genus that combines simple septate generative hyphae, dextrinoid skeletal hyphae and a phytopathogenic habit. Most *Microporellus* species, including the type species, also present ventricose and thick-walled cystidia (Decock 2007), a feature absent in *M. iguazuensis*.

The unique combination of features in *M. iguazuensis* suggests that it should not be included in either *Microporellus* or *Heterobasidion* Bref., but perhaps represents a distinct genus. However, we think that these morphological data are not distinct enough to circumscribe a new genus to accommodate this species; further studies are necessary, including cultural characteristics and molecular data. Our attempts to obtain cultures from the context and spore print, using MEA and PDA, were not successful. Maybe further attempts using other media will succeed in initiating mycelial growth.

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